AXXION
LEXUS
MAXIM
PANASCANIC
RECOR
SANTEC
YOKO

RC-4020 PST
RC-4021 PST
RC-4120 PST
RC-4121 PST

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ELECTRICAL SPECIFICATIONS

DIMENSION	: 570 x 510 x 555 mm		
WEIGHT	: 19.5 kg		
TV RF SYSTEM	: CCIR B,G,D,K,K1,I INFRARED REMOTE CONTROL FULL FUNCTION ON-SCREEN DISPLAY 90 PRESET CHANNELS SOUND MUTE FUNCTION PRESETTABLE OFF TIMER (15-120 min.) AUTOMATIC POWER OFF FUNCTION WHEN NO BROADCASTING SIGNAL IS RECEIVED WITHIN 5 MINUTES OPTION FOR TELETEXT RECEPTION		
COLOUR SYSTEM	: PAL/SECAM/NTSC (AUTOMATIC CHANGEOVER)		
RECEIVING CHANNEL & FREQUENCY	: VHF CH.	(VHF-1)	47MHz .. 120MHz
	VHF CH.	(VHF-3)	112MHz .. 230MHz
	VHF CH.	(UHF)	470MHz .. 862MHz
INTERMEDIATE FREQUENCY			
V. IF CARRIER	: 38.9MHz		
S. IF CARRIER	: 33.4MHz	(5.5MHz)	
	: 32.4MHz	(6.5MHz)	
	: 32.9MHz	(6.0MHz)	
COLOUR CARRIER	: PAL	(4.43MHz)	
	: NTSC	(3.58MHz/4.43MHz)	
	: SECAM	(4.40625MHz/4.25MHz)	
ANT. INPUT IMPEDENCE	: 75 ohm	UNBALANCED	
OWER INPUT	: 165V TO 260V AC 50Hz/60Hz		
POWER CONSUMPTION	: 80W (MAX) 70W (AVG)		
PICTURE TUBES	: 20" IN-LINE TYPE HI-BRI COLOUR PICTURE TUBE		
HIGH VOLTAGE	: 26KV ±1KV (AT ZERO BEAM CURRENT)		
SPEAKER	: 3.5" x 2" OVAL TYPE 8 ohm		
AUDIO OUTPUT	: 2W MAX		
AUDIO MUSIC POWER	: 5W		
EUROPE SCART INTERFACE			
VIDEO IN	: 1V p-p 75 ohm		
AUDIO IN	: 390mV rms (HIGH IMPEDANCE)		
R/G/B IN	: 1V p-p TYPICAL		
LINE-OUT (VIDEO)	: 1V p-p 75 ohm		
LINE-OUT (AUDIO)	: 390mV rms (1k)		
TUBE	: 1		
IC	: 16		
TRANSISTOR	: 40		
DIODE	: 47		

SERVICE ADJUSTMENT

PIF/AFT DETECTOR COIL: T203 VR101

1. Connect signal generator to the test point TP201.
   * CW... 38.9MHz
2. Apply about DC 15V to TP501 by using a DC regulated power supply.
3. Adjust T203 (VIF ref coil) so that the AFT voltage at TP205 is +5.5V ±1V.
4. Adjust VR101 so that the AFT voltage for IC101 at TP207 is +2.5V.

SOUND IF ADJUSTMENT T201 T202

1. Connect signal generator to the test point TP201.
   * CW... 38.9MHz (VIF) 80dB
   32.9MHz (SIF) MOD. by 1kHz
2. Apply about DC 15V to TP501 by using a DC regulated power supply.
3. Adjust take off transformer (T202) and SIF transformer (T201) so that the sound becomes to maximum without distortion.

+115V VOLTAGE POWER SUPPLY ADJUSTMENT VR601

1. Tune in an active channel. Adjust the BRT & CONT. controls for normal picture.
2. Check that the AC power line voltage is normal.
   (AC 90V to 260V 50/60Hz)
3. Connect a VTVM between terminal TP601 on main board.
4. Adjust the B+ adj. (VR601) on main board for +115V reading.
5. Remove the VTVM.

RF AGC CUT-IN: VR203

1. Set the reception channel at CH8
2. Adjust the input signal level to 52dBu.
3. Adjust AGC delay control until noise (snow) disappears from the screen.

CHROMA CIRCUIT: T302, T303, T304 AND T305

(A) SECAM

CHROMA BELL FILTER T302

1. Receive SECAM colour bar pattern.
2. Set the colour & contrast control to normal.
3. Connect the probe (10:1) of the scope to TP302 on main board.
4. Adjust T302 so that each bar of (R-Y) & (B-Y) becomes even respectively.

CHROMA TRAP

1. Receive SECAM colour bar pattern.
2. Connect the probe (10:1) of the scope to TP301 on main board.
3. Adjust T304 so that the colour carrier on each bar becomes minimum.

SECAM REFERENCE

Receive a SECAM colour bar signal.
Set the oscilloscope at the X-Y mode and connect channel 1 (x-axis) to pin 11 of IC303 and channel 2 (y-axis) to pin 12 of IC303 respectively.
Adjust VR301 so that the figure becomes (B) from (A).
Adjust T301 ref coil sot that the figure becomes (C) from (B)

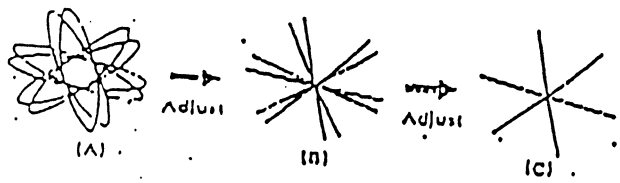
PAL

HROMA TRAP

Receive PAL colour bar pattern.
Connect the prob (10:1) of the scope to TP301 on main board.
Adjust T303 so that the colour carrier on each bar becomes minimum.

NTSC

Set TV to AV mode ato receive NTSC video signal.
Connect the probe (10:1) of the scope to TP301 on main board.
Adjust T305 so that the colour carrier on each bar becomes minimum.



ITE BALANCE ADJUSTMENT (SCREEN POT. VR304 VR307)

V set should be operated more than 5 minutes before doing below procedures.
et the BRT. CONT. COLOUR to the minimum position.
et VR304 VR307 on the CRT board to the mid. position.
lign the screen volume to get DC 400V ±20V of the G2 terminal on the CRT board by sing high impedance voltage-meter.
djust the white balance at high light by the blue, green drive volume in the ondition of brightness; contrast colour at max.
heck the white balance at low light again.

RIZONTAL FREQUENCY: VR201

hort circuit pin 25 of IC202 to ground.
djust VR201 (horizontal frequency control) so that picture appears vertically on CRT.

RIZONTAL CENTRE: VR202

djust VR202 so tht the horizontal centre of the picture comes mostly close to the eometrical centre of CRT.

VERTICAL CENTREL: VR403

1. Adjust VR403 so tht the vertical centre of the picture comes mostly close to the geometrical centre of CRT.

VERTICAL SIZE & LINEARITY VR401 VR402

1. Adjust VR402 (vertical size control) so that vertical overscan is at 8%.
2. Adjust VR401 (vertical linearity control) so that vertical linearity distortion is less than 10%.

FOCUS CONTROL

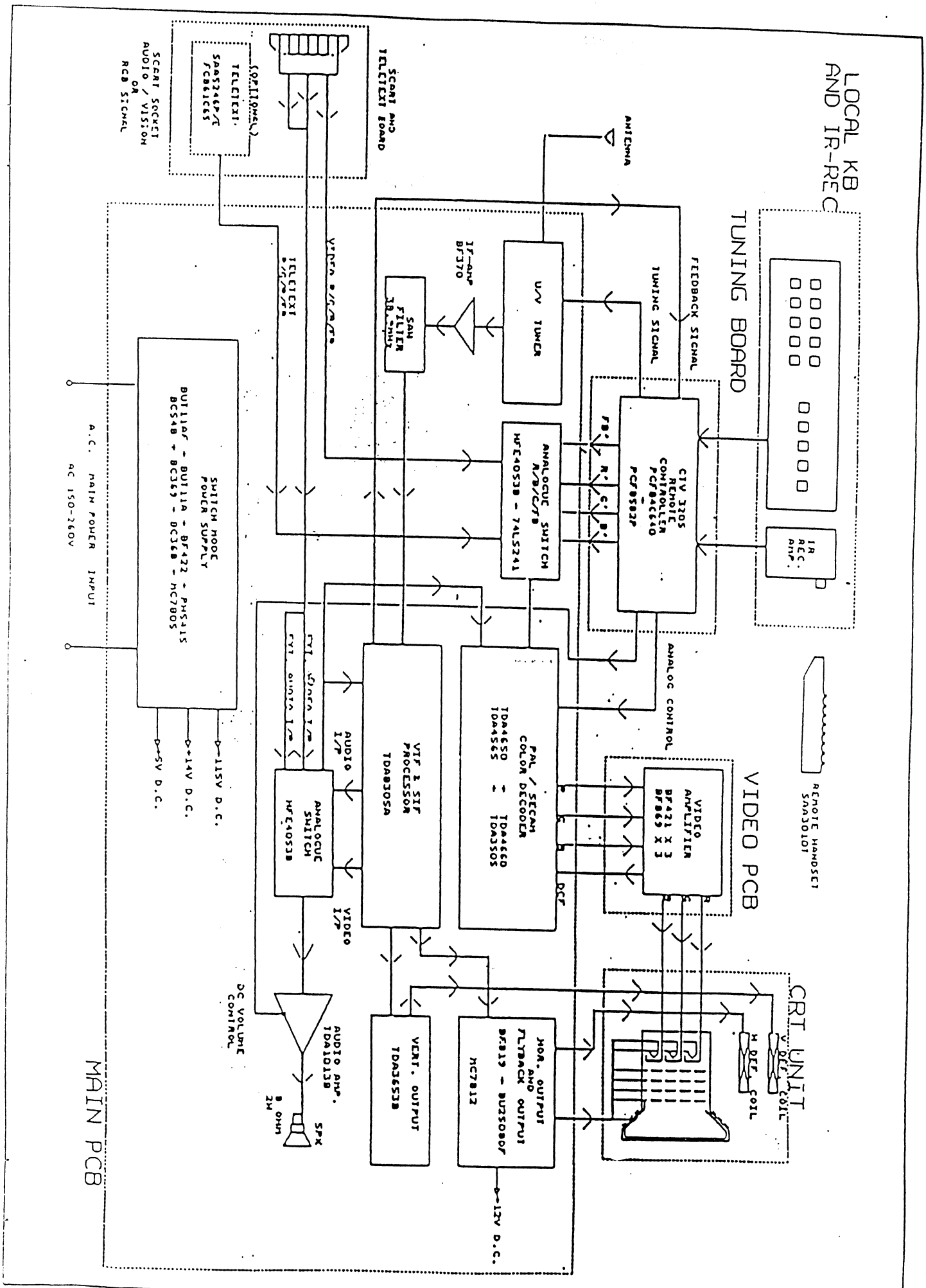
1. Receive PHILIP test pattern signal.
2. Set contrast control at max. position.
3. Set brightness control at centre position.
4. Adjust focus control so that the picture will have best focus at centre portion of screen.

TROUBLESHOOTING HINTS

To enhance fault location, the following components are worth to be initial check parts:

Part No	Description
T01-002508-0BU	Transistor BU2508DF
T01-000011-BUT	Transistor BUT11AF
T03-008305-TDA	I.C. TDA8305A
T06-010000-400	Electrolytic capacitor 100uF/400V
T33-020250-00F	Fuse 2A/250V
T05-000222-300	Ceramic capacitor 0.0022uF/3000V

CHASSIS BLOCK DIAGRAM



TROUBLE SHOOTING CHARTS

NO RASTER

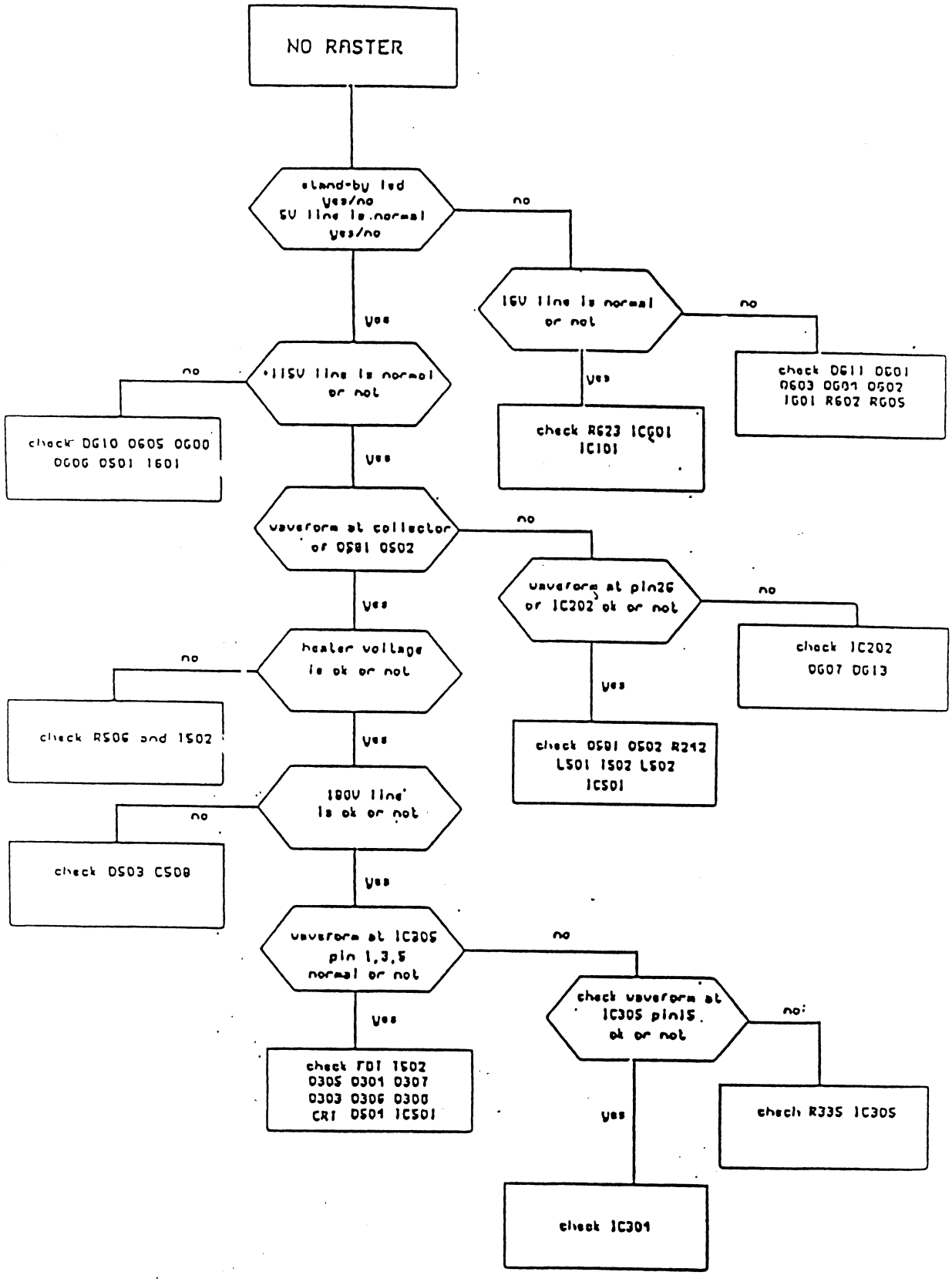


Fig.1

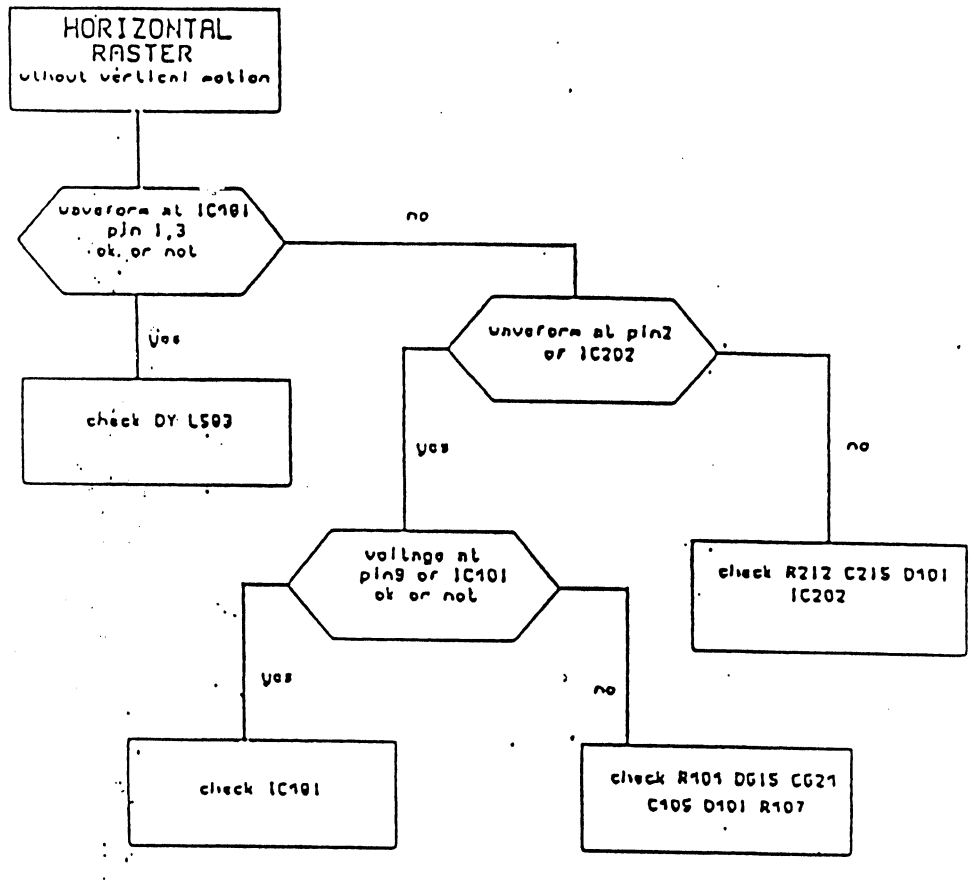

HORIZONTAL
RASTER
without vertical motion
waveform at IC101
pin 1,3
ok or not
no
yes
check DY L503
waveform at pin2
of IC202
yes
no
voltage at
pin9 of IC101
ok or not
check R212 C215 D101
IC202
yes
no
check IC101
check R101 D615 C621
C105 D101 R107

Fig. 2

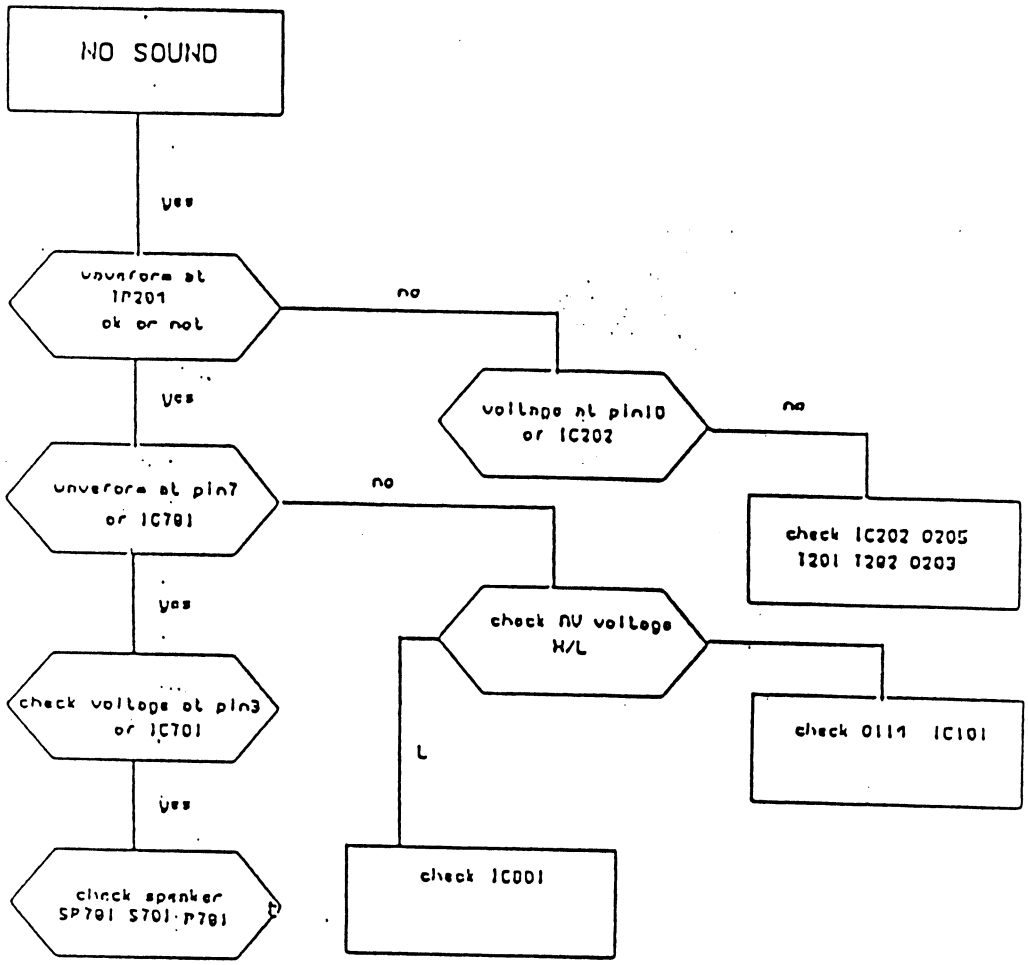

NO SOUND
yes
waveform at IC201 ok or not
no
voltage at pin10 or IC202
no
check IC202 0205 1201 1202 0203
yes
waveform at pin7 or IC701
no
check 5V voltage H/L
check 0111 IC101
yes
check voltage at pin3 or IC701
L
check IC001
yes
check speaker SP701 S701 P701

fig. 3

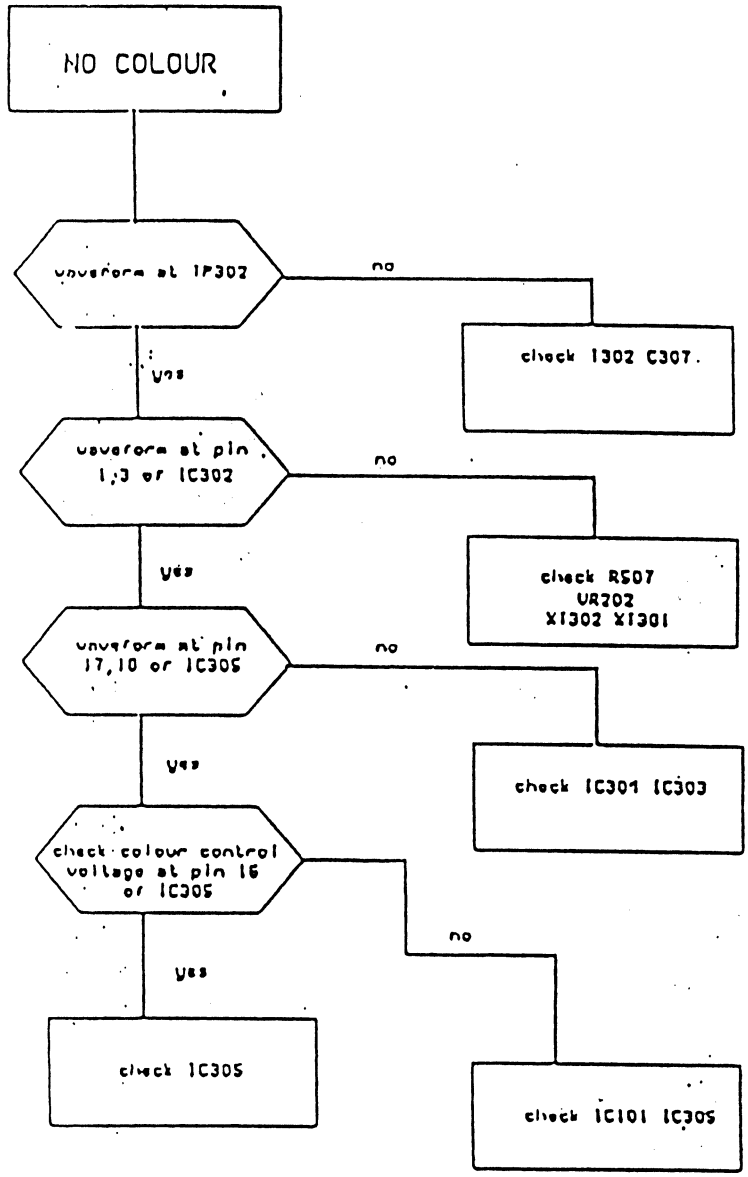

NO COLOUR
waveform at IP302
no
check 1302 C307.
yes
waveform at pin 1,3 or IC302
no
check RS07 VR202 XT302 XT301
yes
waveform at pin 17,10 or IC305
no
check IC301 IC303
yes
check colour control voltage at pin 16 or IC305
no
yes
check IC305
check IC101 IC305

fig 1

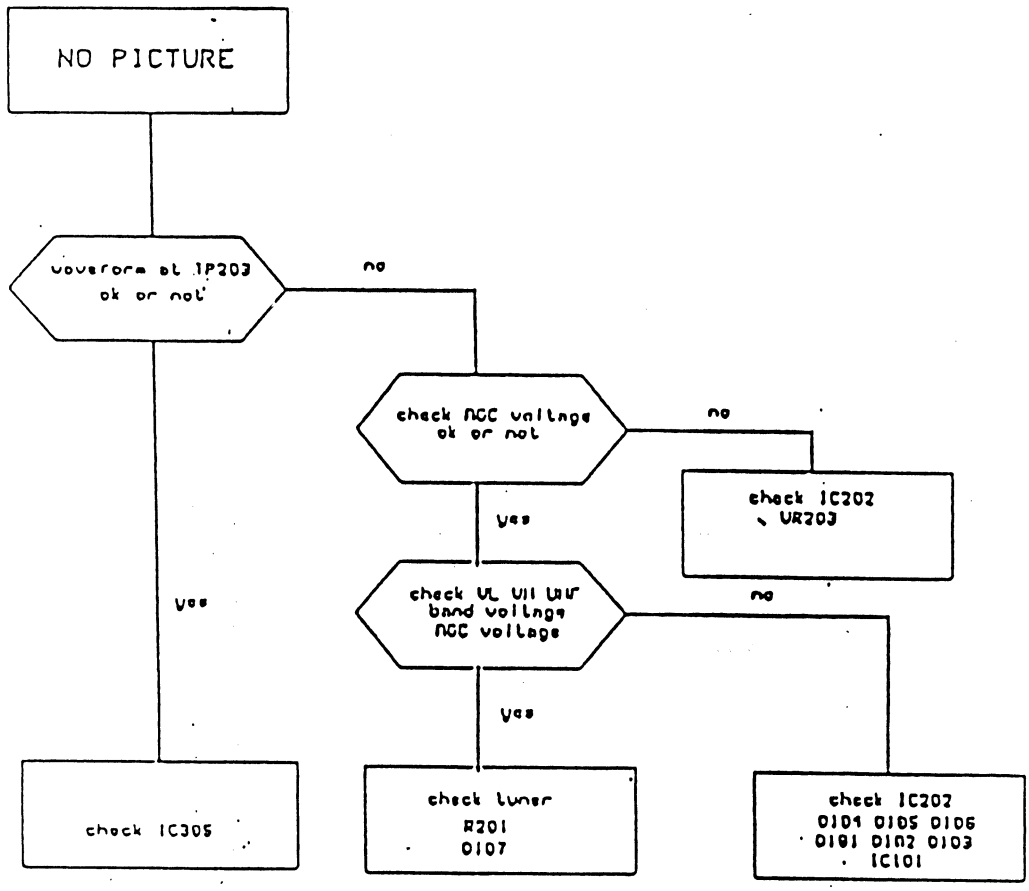

NO PICTURE
waveform at IP203 ok or not
no
yes
check AGC voltage ok or not
no
check IC202 , VR203
yes
check VL VH UHF band voltage AGC voltage
no
yes
check IC305
check tuner R201 D107
check IC202 D104 D105 D106 D101 D102 D103 IC101

fig. 5

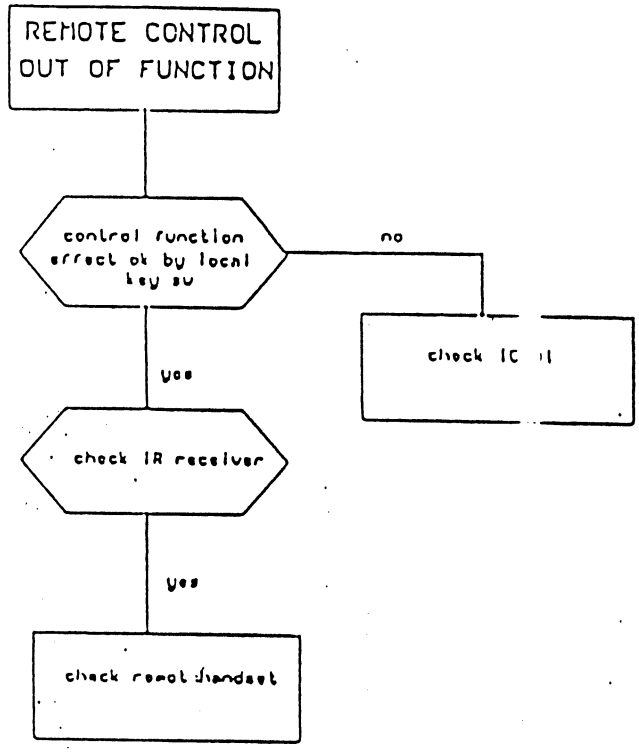
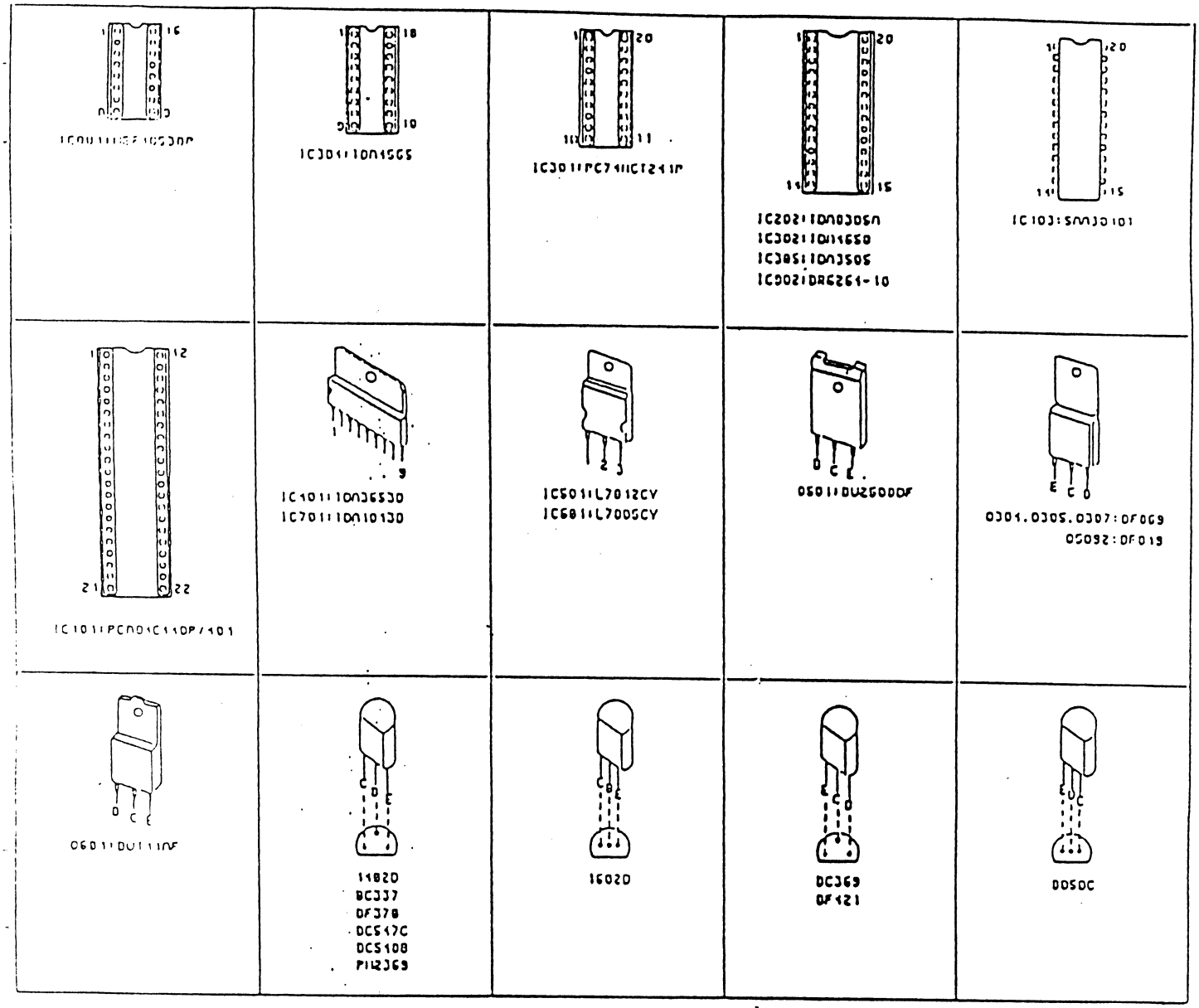

REMOTE CONTROL
OUT OF FUNCTION
control function
effect ok by local
key su
no
check IC
yes
check IR receiver
yes
check remot handset

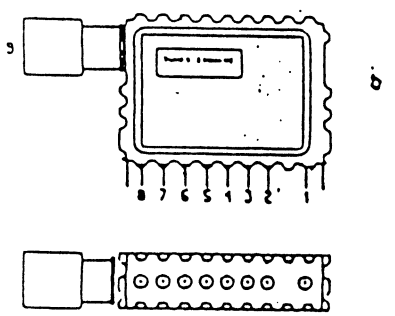
Fig 6

TRANSISTOR AND IC IDENTIFY

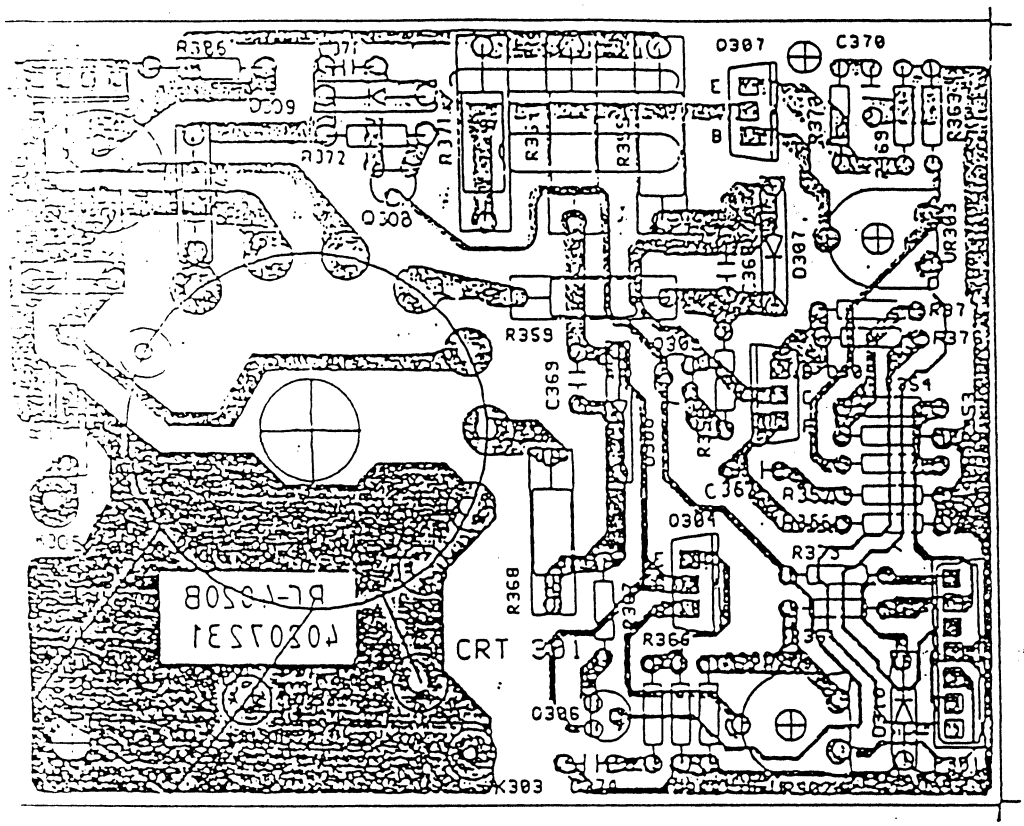


PICTORIAL VIEW OF TUNER

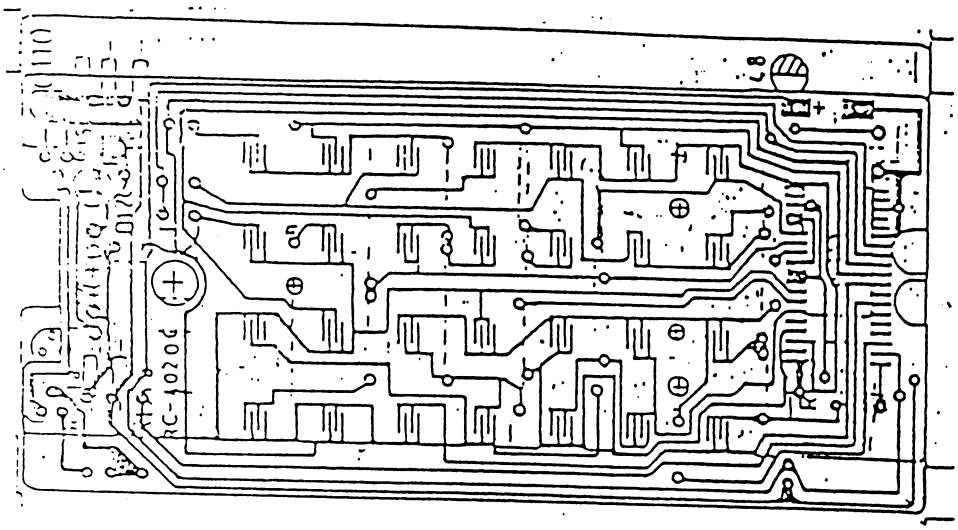
TERMINAL NO.	1	2	3	4	5	6	7	8	9
TERMINAL NAME	IF	MO	AFC	DL	AGC	DII	YI	DU	Y/U INIT



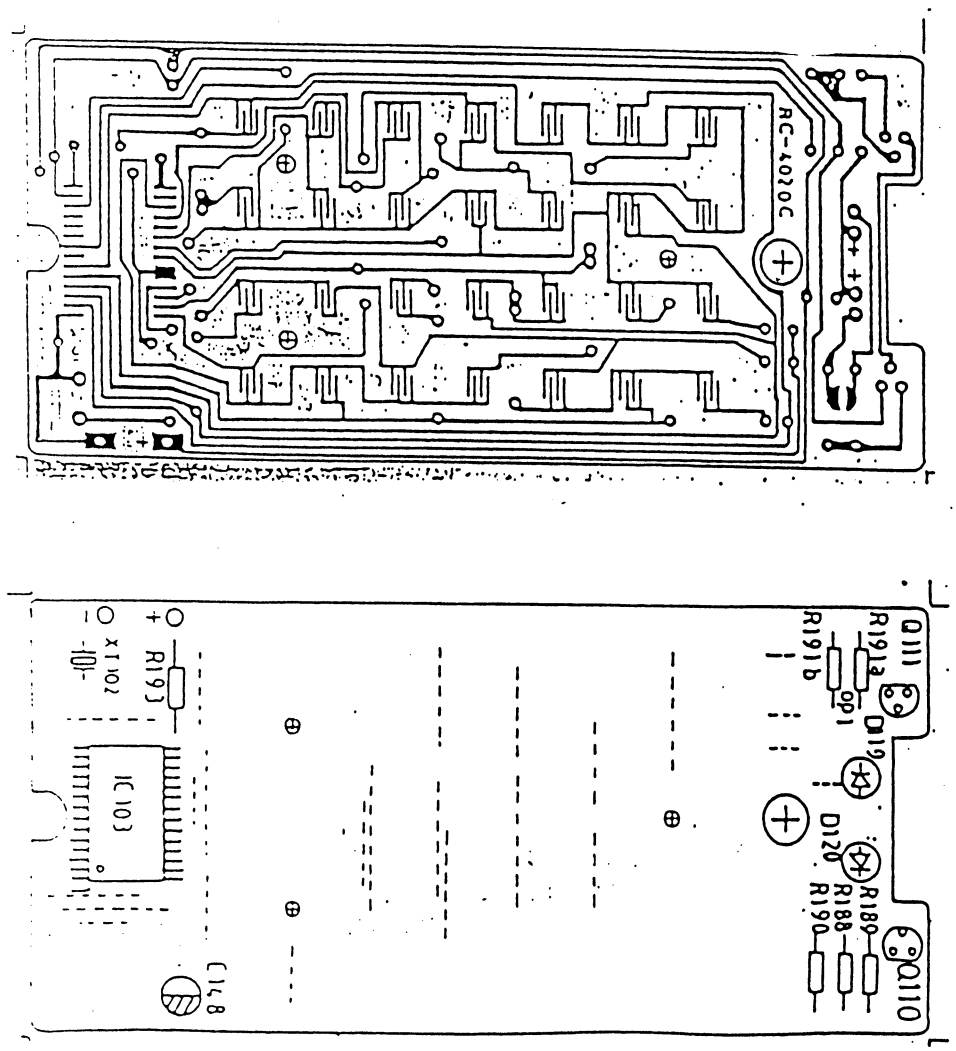
VIDEO BOARD (TOP VIEW)



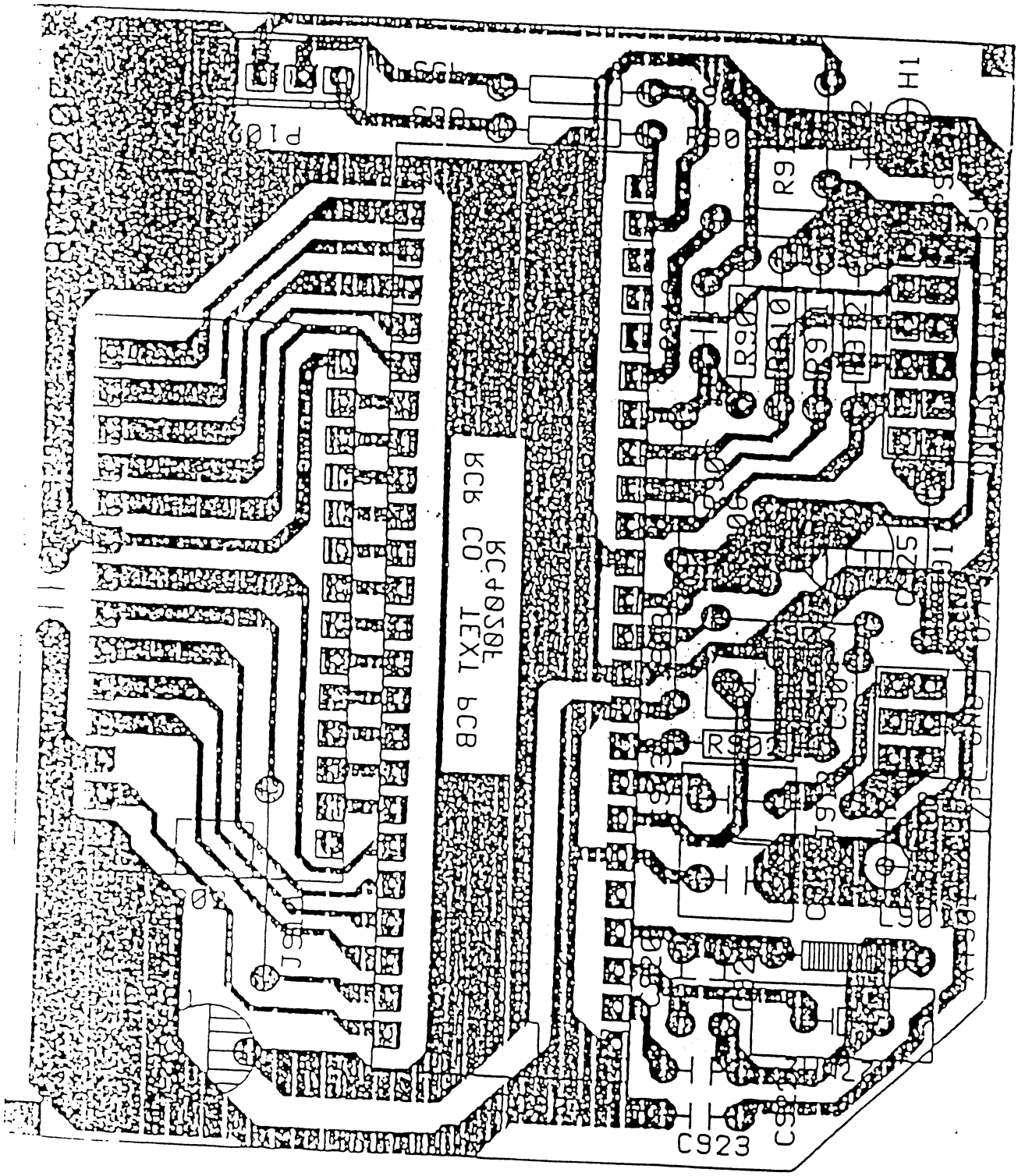
REMOTE BOARD (TOP VIEW)



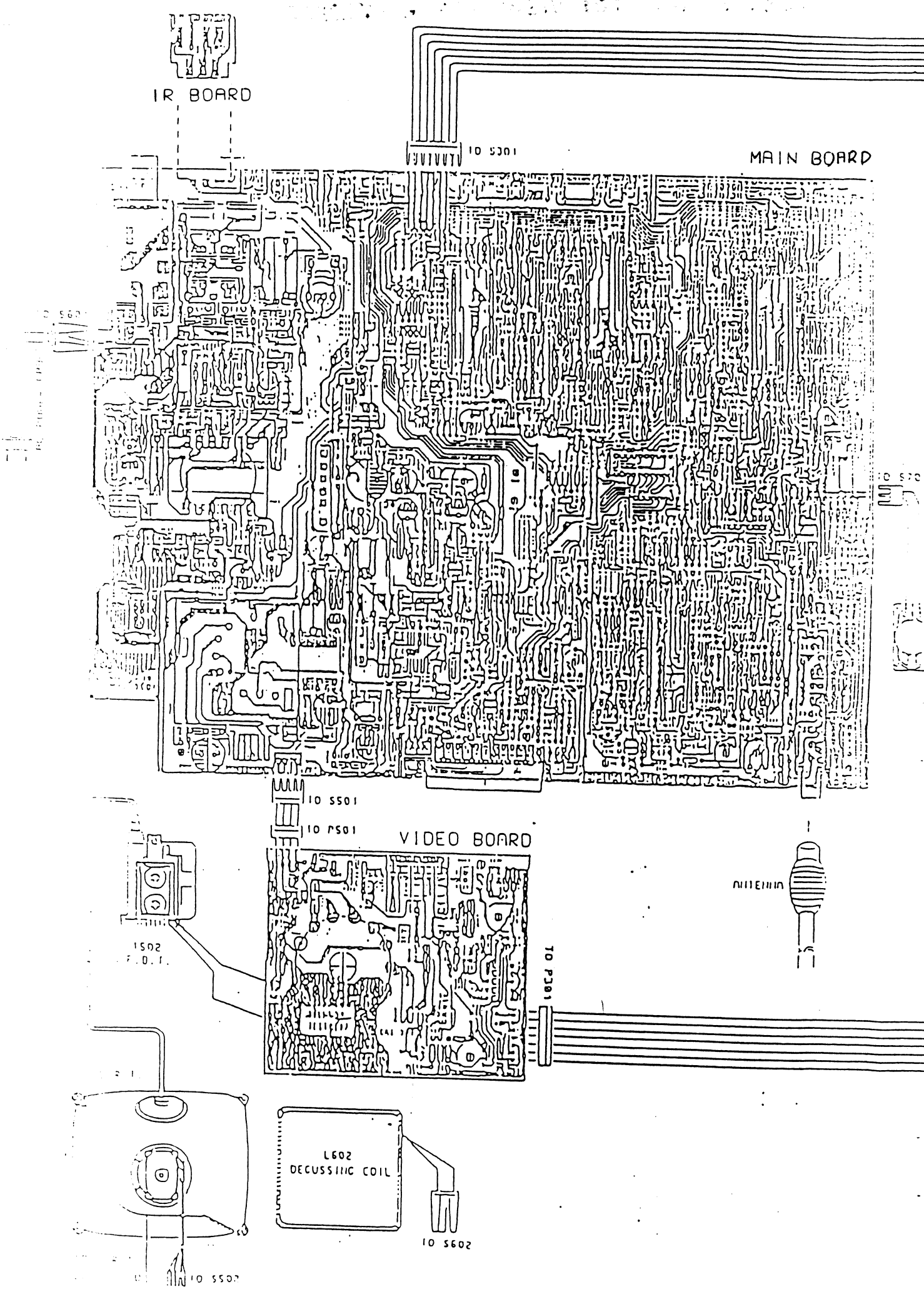
REMOTE BOARD (BOTTOM VIEW)



TEXT BOARD (TOP VIEW) FOR RC-4020PST



WIRING DIAGRAM

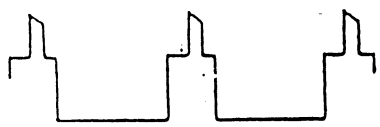


WAVEFORMS

1. TP203

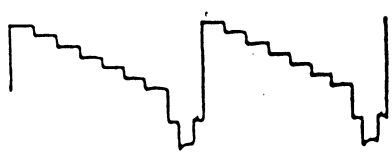
2. TP204

3. TP209

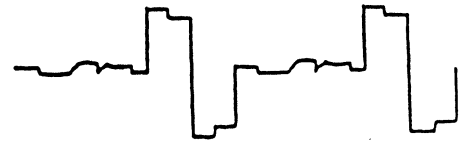


4. TP302

5. TP301



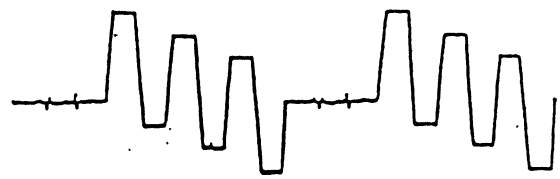
6. TP310



7. TP311

8. TP303

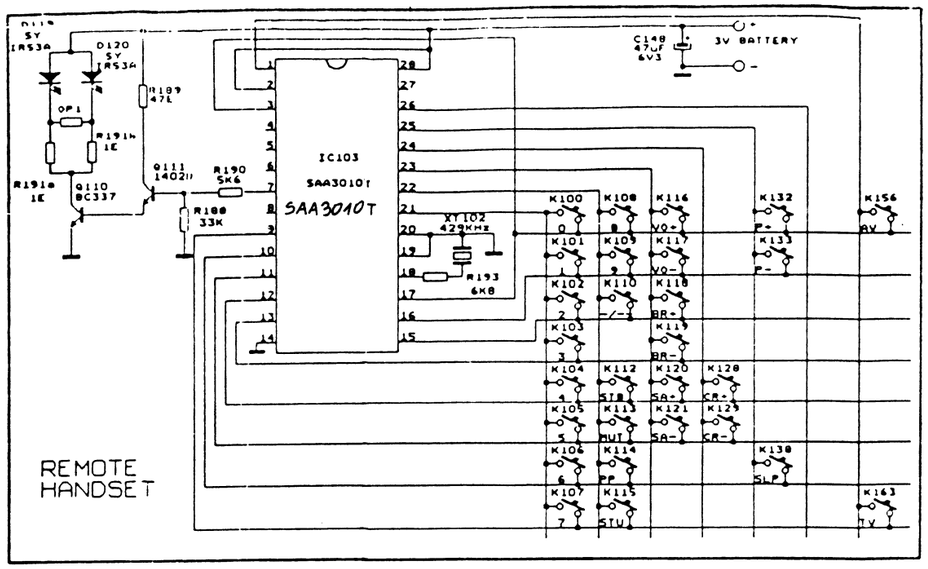
9. TP301

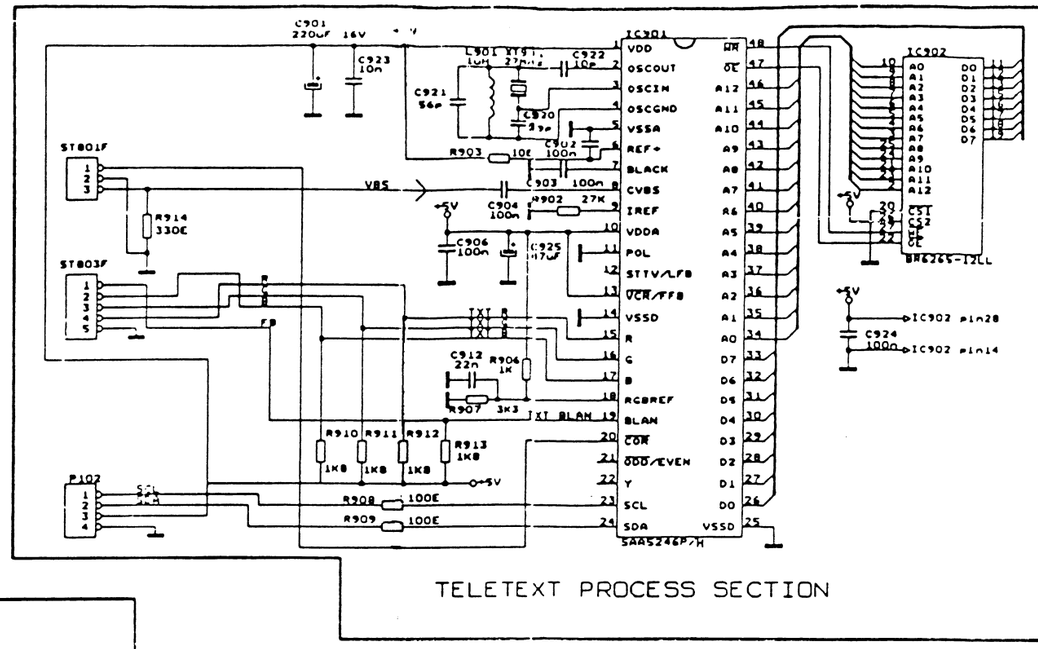


VIF & SIGNAL PROCESS SECTION

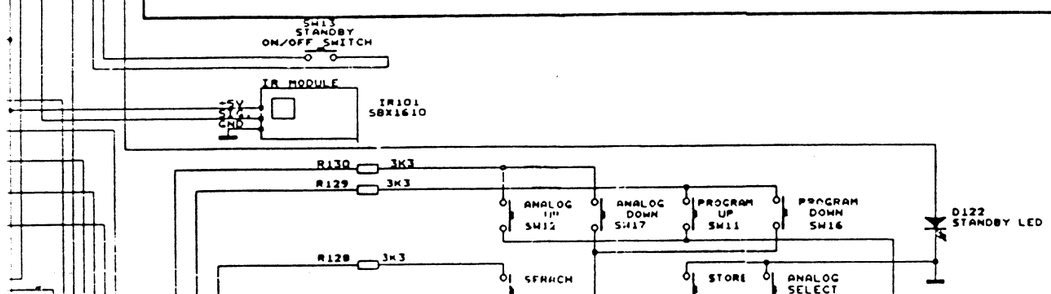
REMOTE HANDSET

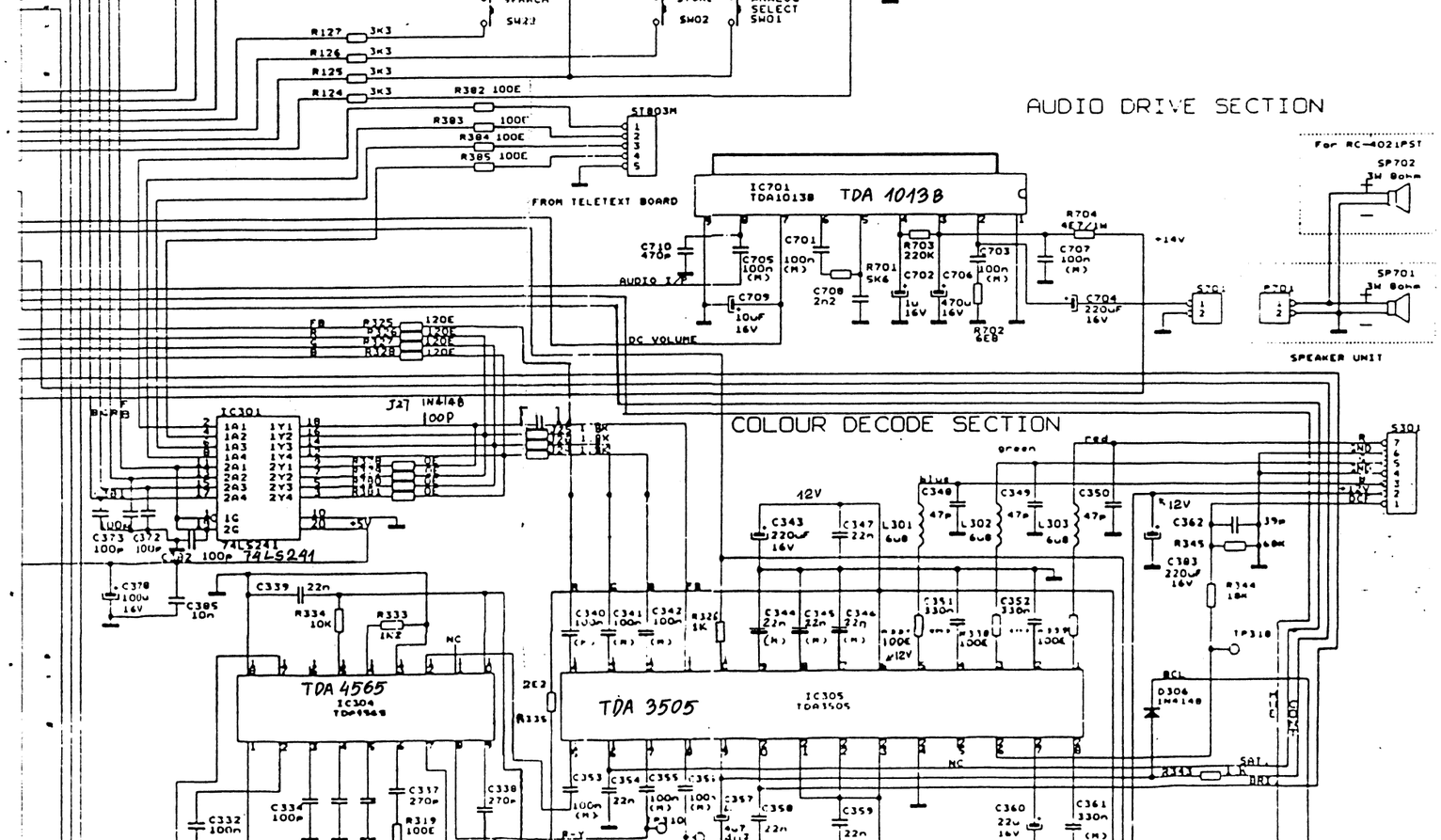
COLOUR

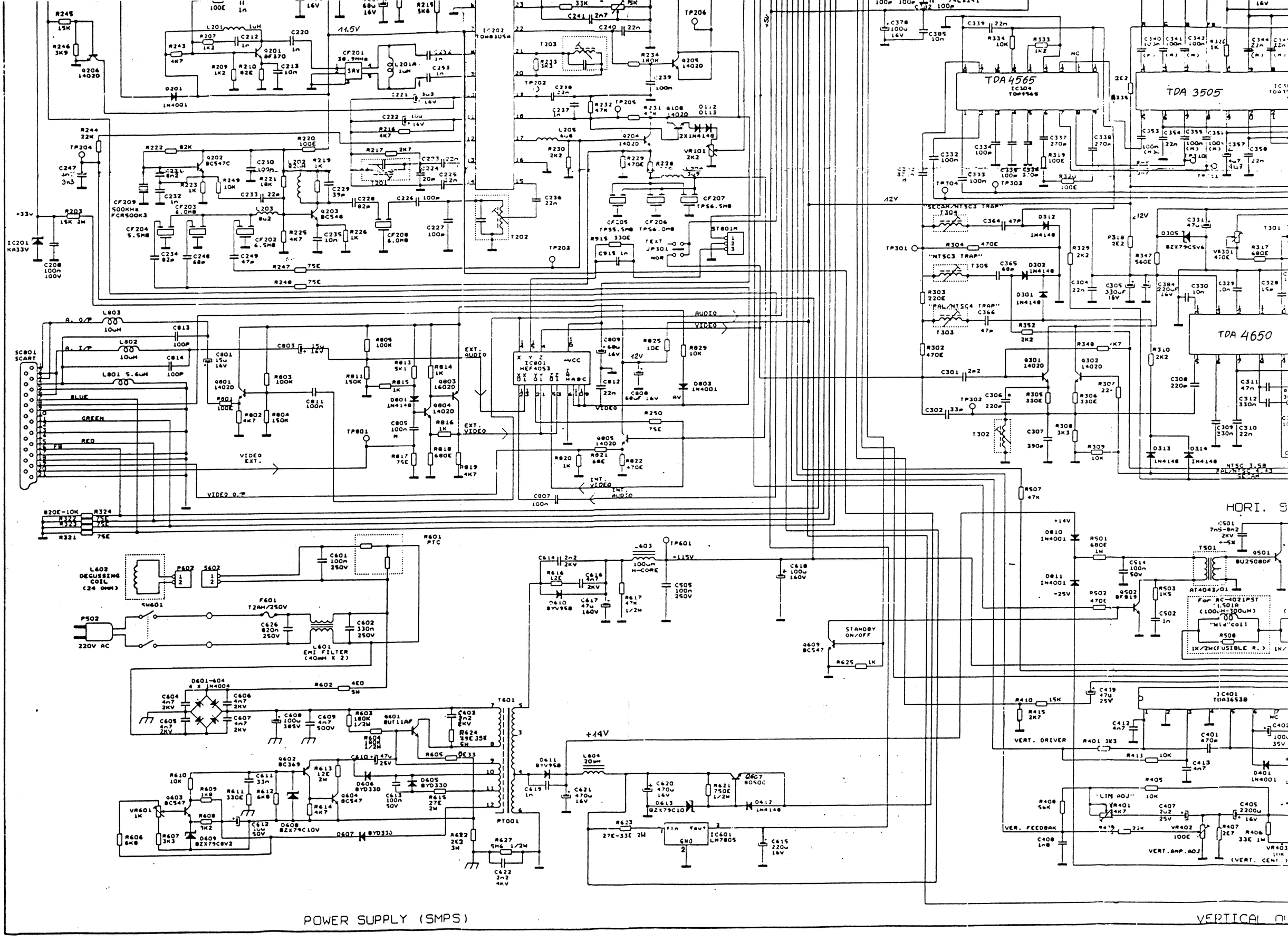


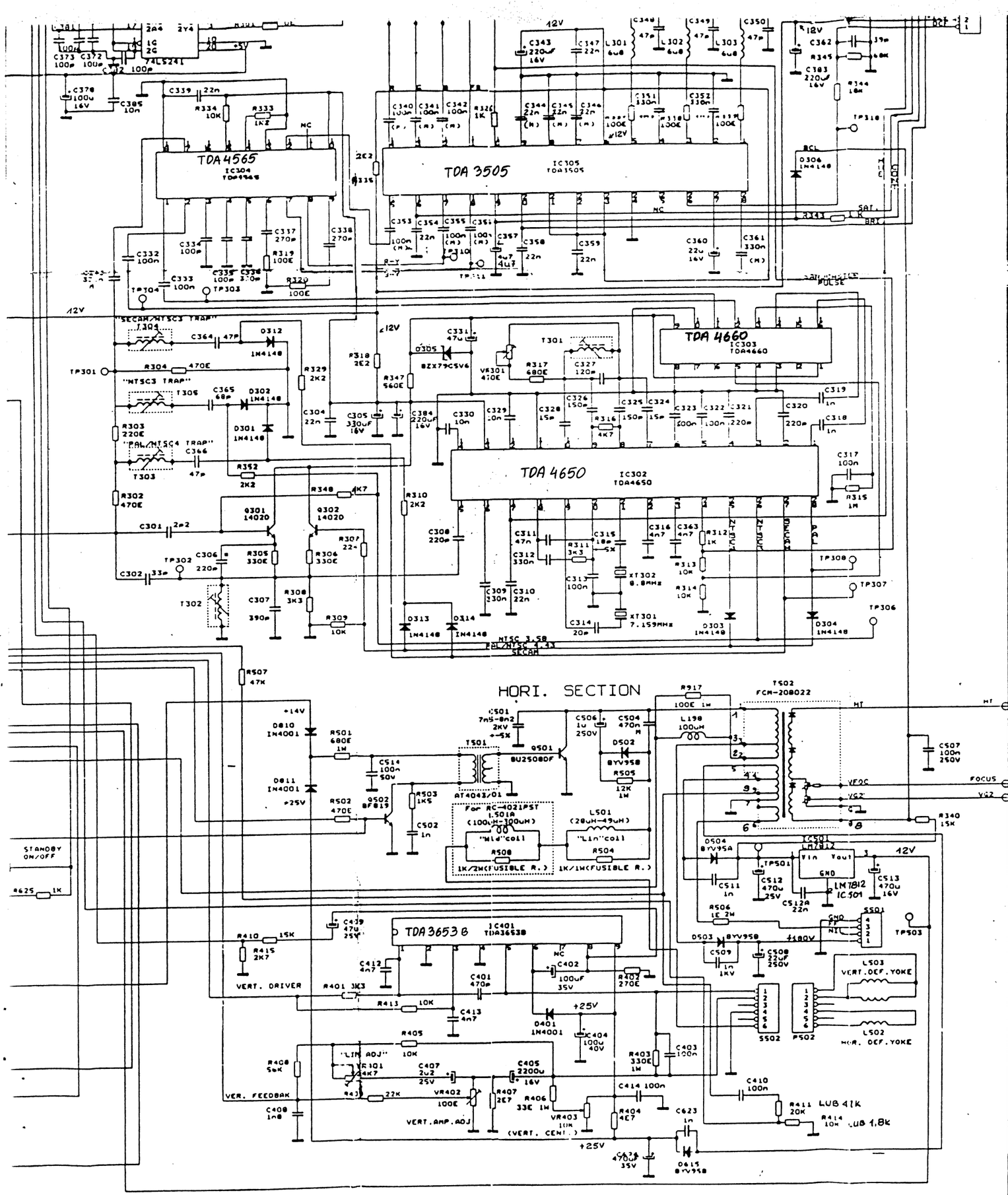


TELETEXT PROCESS SECTION






TDA 4565
TDA 3505
TDA 4650
HORI. S
VERTICAL D
POWER SUPPLY (SMPS)
SCART
BLUE
GREEN
RED
FB
VIDEO EXT.
EXT. AUDIO
EXT. VIDEO
INT. VIDEO
INT. AUDIO
AUDIO
VIDEO
220V AC
STANDBY ON/OFF
VERT. DRIVER
VER. FEEDBAK
VERT. AMP. ADJ
"SECAM/NTSC3 TRAP"
"NTSC3 TRAP"
"PAL/NTSC4 TRAP"
"LIN ADJ"
+14V
+115V
+33V
+5V
12V
11.5V



REMARK:

CONTROL RANGE TABLE

	MIN.	MAX.	CENTER
CONT.	2.8V	4.0V	
BRI.	0.9V	2.4V	
SAT.	2.1V	3.3V	
HUE	1.5V	3.9V	2.8V

	IIC	A1	A2
PCF8581	7b	8a	9b
PCF8582	7a	8b	9b

TUNING STEP DELAY	PIN16	PIN17
40ms	OFF	Oh
52ms	OFF	OFF
61ms	ON	OFF
83ms	ON	Oh

* OFF - OPTION DIODE ABS MT *

SCHMATIC NOTES:

1 RESISTANCE IS SHOWN IN OHMS K=1,000 & M=1,000,000

2 CAPACITANCE IS SHOWN IN uF nF pF

3 STANDARD FILM RESISTOR (5%R25)

T /TANTALUM CAPACITOR

M FILM CAPACITOR

4 VOLTAGE READ WITH DIGITAL VOLTMETER FROM POINT INDICATED TO CHASSIS GROUND USING A NORMAL PICTURE

5 VOLTAGE READINGS SHOWN ARE NORMAL VALUES AND MAY VARY ±20% (EXCEPT H.V.)

VIF & SIGNAL PROCESS SECTION

REMOTE HANDSET

IC101 PCA84C440

IC102 PCF8501

IC103 SAA3010

IC202 TDA8395A

IC301 74L5241

IC304 TDA4565

IC305

IC401 TDA3653B

IC801 HEF4053

IC601 LM7805

SCART

POWER SUPPLY (SMPS)

HORI. SECTION

VERTICAL OUTPUT

SW13 STANDBY ON/OFF SWITCH

SW12 ANALOG UP

SW22 SEARCH

IR101 SBX1610

ST803M

STANDBY ON/OFF

TEXT

NOR

JP301

VIDEO/EXT

EXT.VIDEO

INT.VIDEO

INT.AUDIO

VIDEO

AUDIO

EXT.AUDIO

VIDEO/P

SECAM/NTSC3TRAP

NTSC3TRAP

PAL/NTSCTRAP

"LIN.ADJ."

VERT.AMP.ADJ.

(VERT.CENTR.)

For RC-4021PST

LS01A (100uH-300uH)

LS01 (20uH-49uH)

RS08 1k/2W(FUSIBLE)

RS04 1k/1W(FUSIBLE)

REMOTE HANDSET

TELETEXT PROCESS SECTION

AUDIO DRIVE SECTION

COLOR DECODE SECTION

HORI. SECTION

VERTICAL OUTPUT

REMARK:

CONTROL RANGE TABLE

	MIN.	MAX.	CENTER
CONT.	2.8V	4.0V	
BRI.	0.9V	2.4V	
SAT	2.1V	3.3V	
HUE	1.5V	3.9V	2.8V

	A0	A1	A2
PCF8581	7b	8a	9b
PCF8582	7a	8b	9b

SCHEMATIC NOTES:

1. RESISTANCE IS SHOWN IN OHMS k=1.000 M=1.000.000
2. CAPACITANCE IS SHOWN IN u=uF n=nF p=pF
   T TANTALUM CAPACITOR
   M FILM CAPACITOR
3. —o— STANDARD FILM RESISTOR (SFR25)
4. VOLTAGE READ WITH DIGITAL VOLTMETER FROM POINT INDICATED TO CHASSIS GROUND USING A NORMAL PICTURE
5. VOLTAGE READINGS SHOWN ARE NORMAL VALUES AND MAY VARY +/- 20% (EXCEPT H.V.)
6. SCHEMATIC SUBJECT TO CHANGE WITHOUT NOTICE

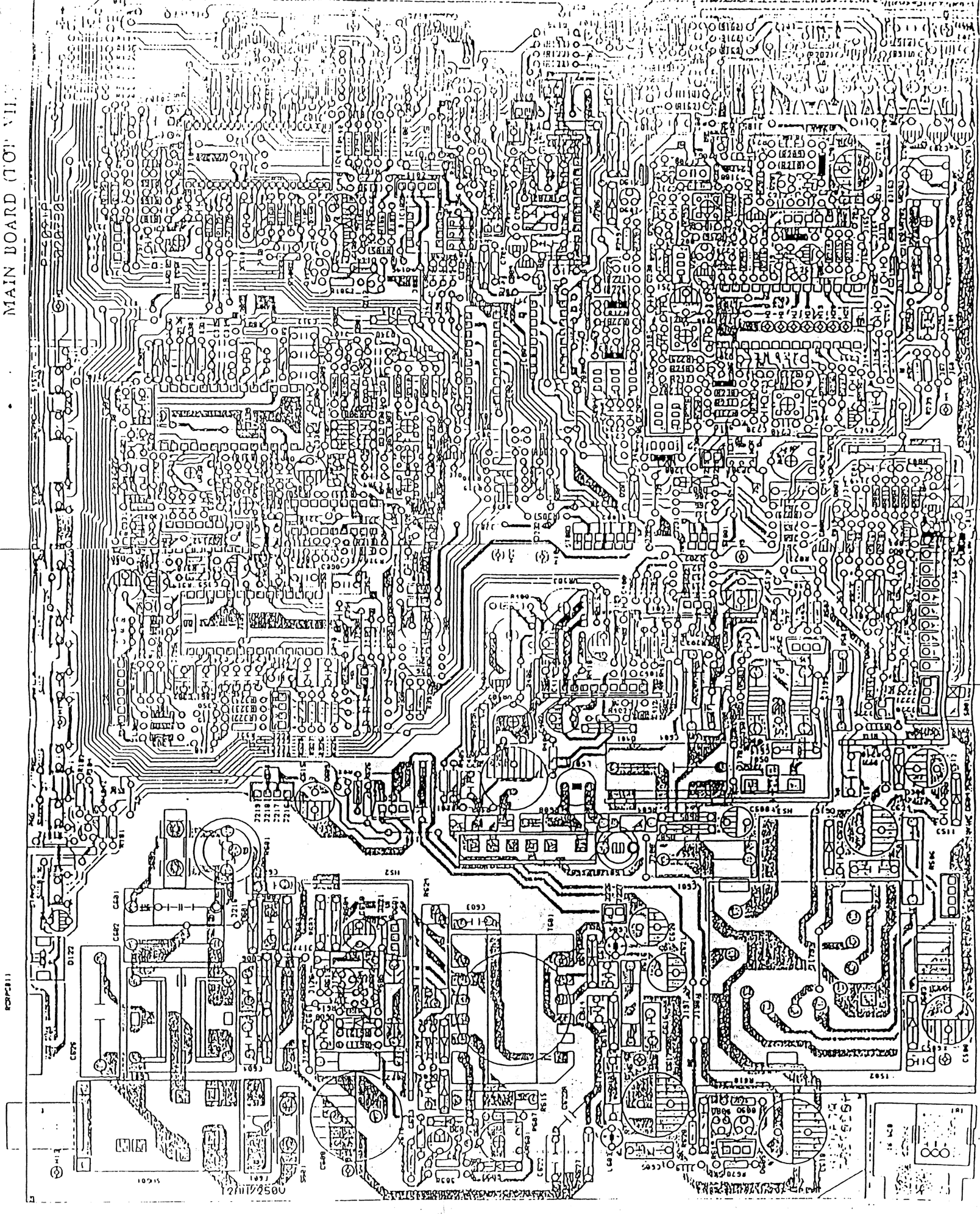
IC101

TUNING STEP DELAY	PIN16	PIN17
40 ms	OFF	ON
52 ms	OFF	OFF
61 ms	ON	OFF
83 ms	ON	ON

"OFF - OPTION DIODE ABSENT"
"ON - OPTION DIODE PRESENT"

PRINTED WIRING BOARD

MAIN BOARD (TOP VIEW)



MAIN BOARD (BOTTOM VIEW)